

# Content Analysis of Food Advertisements on TV Channels in Turkey

## Türkiye'deki Televizyon Kanallarında Yayımlanan Gıda Reklamlarının İçerik Analizi

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### Abstract

**Introduction:** Childhood obesity is an important public health problem and rising. The spread of unhealthy food advertisements (ads) in media may contribute to obesity. This study aims to perform a content analysis of food ads on TV channels in Turkey.

**Materials and Methods:** This cross-sectional study included 6 TV channels with the highest ratings according to the Television Monitoring Surveys Joint Stock Company 2016 data. Primetime (PT, 20:00-23:00 and off prime time (OPT, 17:00-19:59) time slots were taken into consideration for data collection. The data was collected between October 13-19, 2017. For standardization, food groupings were based on previously published literature and the Turkey Specific Food and Nutrition Guide. Frequencies and percentages are given for descriptive statistics and chi-square test was used to compare categorical variables.

**Results:** A total of 2740 food ads were evaluated. 1.732 (63.2%) of them were found to be unhealthy, only 124 (4.5%) were healthy and 884 (32.3%) were other types of food ads. There were more unhealthy food ads in the OPT period (65.5%) than the PT period (60.2%) ( $p=0.005$ ). The most commonly advertised unhealthy food ads were cakes, cookies, and biscuits. Unhealthy drink ads were coke, carbonated beverages, and aroma sodas.

**Conclusion:** Two of 3 food ads on Turkish TVs are unhealthy. Any child will be exposed to an average of 96 unhealthy food ads per week in case of only 2 hours of TV viewing per day.

### Keywords

Obesity, child, media, food, advertisement

### Anahtar kelimeler

Obezite, çocuk, medya, gıda, reklam

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### Öz

**Giriş:** Çocukluk çağı obezitesi önemli bir halk sağlığı sorunudur ve giderek artmaktadır. Medyada sağlıksız gıda reklamlarının yaygınlaşması obeziteye katkıda bulunabilmektedir. Bu çalışma, Türkiye'deki televizyon kanallarında yayımlanan gıda reklamlarının içerik analizini yapmayı amaçlamaktadır.

**Gereç ve Yöntem:** Kesitsel tipteki bu araştırmaya Televizyon İzleme Araştırmaları Anonim Şirketi 2016 verilerine göre en yüksek reytinge sahip 6 TV kanalı dahil edilmiştir. Zamansal ilişkinin karşılaştırılabilmesi amacıyla primetime (PT, 20:00-23:00) ve off prime time (OPT, 17:00-19:59) zaman dilimleri değerlendirmeye alınmıştır. Veriler 13-19 Ekim 2017 tarihleri arasında toplanmıştır. Standardizasyon için, gıda gruplamaları daha önce yayımlanmış literatüre ve Türkiye'ye Özgü Besin ve Beslenme Rehberi'ne dayanılarak yapılmıştır. Tanımlayıcı istatistikler için frekans ve yüzdeler verilmiş, kategorik değişkenlerin karşılaştırılmasında ki-kare testi kullanılmıştır.

**Bulgular:** Toplam 2.740 gıda reklamı değerlendirilmiştir. Bunların 1.732'si (%63,2) sağlıksız, sadece 124'ü (%4,5) sağlıklı ve 884'ü (%32,3) diğer gıda reklamı türündedir. OPT döneminde (%65,5) PT döneminden (%60,2) daha fazla sağlıksız gıda reklamı bulunmaktadır ( $p=0,005$ ). En çok yayımlanan sağlıksız gıda reklamları kek, kurabiye ve bisküvi iken sağlıksız içecek reklamları kola, gazlı içecekler ve aromalı soda reklamlarıdır.

**Sonuç:** Türkiye'deki televizyon kanallarında yayımlanan her 3 gıda reklamından 2'si sağlıksız gıda reklamıdır. Bir çocuk günde sadece 2 saat televizyon izlemesi durumunda haftada ortalama 96 sağlıksız gıda reklamına maruz kalmaktadır.

## Introduction

Obesity is a health problem caused by excessive fat accumulation in the body. The prevalence of childhood obesity on the rise all over the world and in Turkey (1,2). According to World Health Organization (WHO) data, the prevalence of overweight/obesity in the world between 5-19 years has increased over the years; from 4% in 1975 to 18% in 2016. In Turkey, the prevalence of obesity among children and adolescents aged 5-19 has risen dramatically from just 5% in 1975 to 29.5% in 2016 (1).

Genetic, environmental, and behavioral factors play roles in the increase in childhood obesity (3,4). The obesogenic environment has been shown as the main reason for the increase in the frequency of obesity via contributing to weight gain. It is defined as an unsuitable environment for weight loss and the Media plays an important role in the formation of this environment (5). The widespread use of unhealthy food marketing in the Media changes the purchasing and consumption behaviors of families and leads to childhood obesity (4,6-8). While exposed to these unhealthy advertisements at many points of daily life; TV advertising has long been used by the food industry as one of the most important means of publicity as an effective means of reaching children (7). According to the studies, food advertisements mainly affect the knowledge, attitudes, and behaviors of children; these effects can be more prominent in developing countries (7,9,10). For this reason, in 2010, the WHO introduced a series of recommendations regarding the marketing of food and non-alcoholic beverages to children and aimed to reduce the marketing effect of foods containing highly saturated fat, trans-fatty acids, sugar, and salt (11).

The increase in childhood obesity is an important public health problem, given the potential impacts of both adulthood and aging. The content of food advertising to children is not known to TV channels broadcasting in Turkey since there is a very limited

number of studies on this subject. In this study, we aim to explain the potential relationship of food advertising with different channels and times, and to provide suggestions for legislation on food advertising on TV.

## Materials and Methods

This cross-sectional study constitutes the universe of all television channels broadcasting in Turkey. Six television channels with the highest ratings based on a television viewing research company 2016 data were included in the study. To compare the temporal relationship, 17:00-19:59 [off prime time (OPT)] and 20:00-23:00 [prime time (PT)] times where television was most-watched were evaluated.

Ads are divided into food ads and non-food ads. According to Turkey's Food and Nutrition Guide and studies in the literature, food ads are divided into three categories as unhealthy, healthy, and other (restaurant, supermarket, black coffee/tea, vitamin/mineral supplements, formula, recipe additions, etc.) and thus, advertising categorization form was created. Foods and beverages containing high amounts of fat, sugar and salt are considered unhealthy. Before the data collection process, 12 researcher assistants were given training on forms and the data collection process, and a team of two researcher assistants was assigned for each channel. Data were collected between October 13-19, 2017, with individual notes regarding video recording or advertising content. Individual notes were shared by two researchers responsible for the channel. All ads were evaluated, and duplicate ads were included in the analysis.

The study protocol was approved by Pamukkale University Ethics Committee (approval number: 60116787-020/81512, date: 05.12.2017).

## Statistical Analysis

Data were evaluated in SPSS 17.0 package program. Frequency, percentage, and averages were given for descriptive statistics, and the number of advertisements

per channel (food/non-food, unhealthy/healthy/other) was calculated per hour. Chi-square test was used to compare categorical variables, and the significance test of the difference between two means (t-test) was used to compare independent group differences of continuous variables. Statistical significance level (p)<0.05 was considered significant.

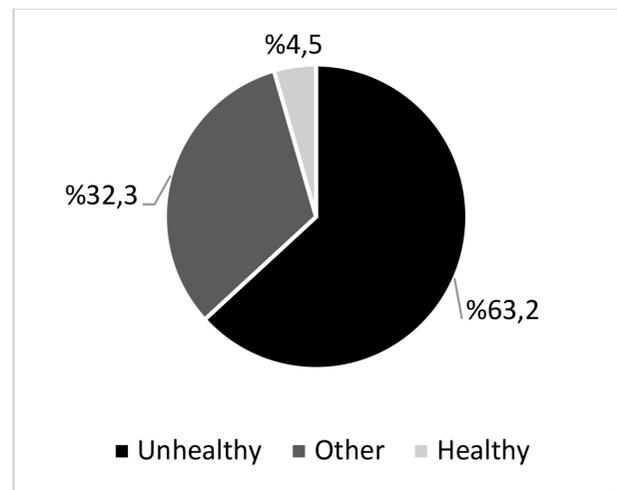
**Results**

A total of 7.662 advertisements were evaluated and 35.8% of them were food advertisements. When food ads were compared according to the channel, day, and time characteristics, a statistically significant difference was observed between channels and the time of the day. The highest food advertising frequency is 43.4% on Channel 2 and more food advertisements are published in the OPT time frame (Table 1).

When the contents of the published food advertisements were analyzed, 1.732 (63.2%) of the 2.740 food advertisements were unhealthy, 124 (4.5%) were healthy, and 884 (32.3%) were other food advertisements (Figure 1). Cake/cookies/biscuits (5%), chocolate/wafers/bars (3.2%), chips/popcorn/salted dried fruits (2.7%) were the most frequently published unhealthy food advertisements. Cola/sparkling/flavored soda (4.1%) was the most frequently published unhealthy beverage advertisement. Only non-sugar dairy products (yogurt, milk, buttermilk, etc.) (1.3%) and water/mineral water (0.2%) were the healthy food/beverages. Restaurant ads constitute 4.4% of all ads.

Supermarket (3.4%) and vitamin/mineral supplements (1.7%) was among the most frequently published advertisements (Table 2).

Table 3 shows the comparison of food advertisements according to the channel, day, and time characteristics on which they were televised. The most unhealthy food advertisements were seen in channel 2 (71.9%) and there was a statistically significant difference between the groups (p<0.001). While 64.6% of the weekday advertisements are unhealthy food ads, 59.8% of the weekday advertisements are unhealthy food advertisements. It was determined that there were more unhealthy food advertisements in the



**Figure 1.** Distribution of food ads by content.

**Table 1.** Comparison of food and non-food advertisements by channel, day and time characteristics

	Food ads		Non-food ads		P
	n	%	n	%	
Channel*					
Channel 1	412	30.4	945	69.6	<0.001
Channel 2	388	43.4	505	56.6	
Channel 3	551	39.2	855	60.8	
Channel 4	468	36.5	813	63.5	
Channel 5	411	33.1	832	66.9	
Channel 6	510	34.4	972	65.6	
Day of the week					
Weekdays	1.932	35.5	3.504	64.5	0.530
Weekend	808	36.3	1.418	63.7	
Time frame					
Prime time	1.173	34.0	2.280	66.0	0.003
Off prime time	1.567	37.2	2.642	62.8	
Total	2.740	35.8	4.922	64.2	-

\*The names of the TV channels were masked to prevent advertisement

OPT period than the PT period ( $p=0.005$ ). The ratio of the number of advertisements according to channels and hours was determined as 6.87 for unhealthy food advertisements. Weekday (6.93) compared to the weekend (6.70); OPT (8.14) compared to PT (5.60) had statistically significant more unhealthy food advertisements ( $p<0.001$ ) (Table 4).

## Discussion

When compared with the studies in the literature, the frequency of food advertisements in total advertisements was found to be higher in our study. According to our study, in TV channels broadcasting

in Turkey one in three ads is food ads. In another study conducted in Malaysia in 2013, it was determined that food advertisements accounted for 23% of all advertisements (7). Li et al. (6) explored the extent and nature of television food advertising in Xi'an, China. They found that 25% of the 5.527 studies they evaluated were food advertisements. In 2012, Ok et al. (12), including three TV channels broadcasting in Turkey, found that 29% of the TV advertisements were food advertising. In 2007, Guran et al. (13) was determined 32% as evaluating ads on 4 TV channels broadcasting in Turkey. In another study from Iran, 4 TV channels were evaluated for a week in 2012, while the frequency of publishing food advertisements was

Table 2. Types of food advertisements and frequency of delivery

Advertisement	n	%
<b>Unhealthy food</b>		
Cakes, cookies, biscuits and so on	383	5.0
Chocolate, wafer, bar and so on	249	3.2
Chips, popcorn, salted dried fruits	208	2.7
Chewing gum	148	1.9
Ice cream	81	1.1
Dairy desserts	77	1.0
Jam, marmalade, cream chocolate, mash etc.	62	0.8
Processed meat products	39	0.5
Frozen foods	35	0.5
Prepared sauces	12	0.2
Prepared soups	6	0.1
High sugar and/or low fiber breakfast cereals	4	0.1
<b>Unhealthy beverage</b>		
Cola, carbonated beverage, flavored soda	315	4.1
Dairy products with added or flavored sugar	38	0.5
Sugar added tea/coffee, cold tea/coffee	28	0.4
Powders for beverages	27	0.4
Energy drink	17	0.2
Fruit juices	3	-
<b>Healthy food/drink</b>		
Unsweetened dairy products (yoghurt, milk, buttermilk etc.)	103	1.3
Water/mineral water	16	0.2
Greengrocery	3	-
Low-sugar, high-fiber breakfast cereals	1	-
Meat/fish/eggs	1	-
Bread/grain/rice/legume	-	-
<b>Other</b>		
Restaurant	336	4.4
Supermarket	260	3.4
Vitamin/mineral supplements	130	1.7
Formula	37	0.5
Recipe additions (broth, oil, condiment, etc.)	35	0.5
Black coffee/tea	20	0.3
Other	66	0.9

found to be 14.9%. In another 11 country study, the frequency of food advertisements was determined to be 18% in 2008 (14,15). In a study conducted on Italian TV channels in 2016-2017, it was determined that 11% of 810 commercials were food advertisements, and 72% of them were sweet/salty snack advertisements (16). Cheung and Louie (17) was determined that 18.4% of 10.348 advertisements were food advertisements in Hong Kong and Kontsevaya et al. (18) was determined that 19.2% of the advertisements broadcast on 5 TV channels were food advertisements in Russia.

According to our findings, two out of three food advertisements were unhealthy food advertisements. Neville et al. (9) reported that 55% of food advertisements broadcast on Australian metropolitan television channels contain foods that were high in fat and/or sugar. In the study conducted in 11 countries,

67% of food advertisements were unhealthy (15). Studies by Ok et al. in 2012 (12) and Guran et al. (13) in 2007 in Turkey was determined the unhealthy food advertising frequency on TV as 81% and 88%, respectively. Similarly, in the study that evaluated the children's channels broadcasting in Argentina in 2014, the frequency of unhealthy advertising was found to be 64% (19). In 2012, unlike our study in China, the percentage of unhealthy food advertising was found to be lower (48%) (6).

It has been determined that the frequency of food ads and the unhealthy food ads within them vary according to the viewing time. This may be due to the lack of standardization as defined by the legislation or the lack of supervision or both. In the OPT period, in which children spent more time at home during the day after school and programs for children, the frequency

Table 3. Comparison of food ads by channel, day and time

	Unhealthy food		Healthy food		Other		P
	n	%	n	%	n	%	
Channel*							
Channel 1	182	44.2	40	9.7	190	46.1	<b>&lt;0.001</b>
Channel 2	279	71.9	20	5.2	89	22.9	
Channel 3	325	59.0	22	4.0	204	37.0	
Channel 4	334	71.4	4	0.9	130	27.8	
Channel 5	287	69.8	14	3.4	110	26.8	
Channel 6	325	63.7	24	4.7	161	31.6	
Day of the week							
Weekdays	1249	64.6	82	4.2	601	31.1	0.050
Weekend	483	59.8	42	5.2	283	35.0	
Time frame							
Prime time	706	60.2	49	4.2	418	35.6	<b>0.005</b>
Off prime time	1026	65.5	75	4.8	466	29.7	
Total	1732	63.2	124	4.5	884	32.3	-

\*The names of the TV Channels were masked in order to prevent advertisement

Table 4. Distribution rates of food ads by temporal properties

Variables	Unhealthy food (n=1732)		Healthy food (n=124)		Other (n=884)	
	n/h/c*	p	n/h/c	p	n/h/c	p
Day of the week						
Weekdays	6.93	<b>&lt;0.001</b>	0.45	<b>&lt;0.001</b>	3.33	<b>&lt;0.001</b>
Weekend	6.70		0.58		3.93	
Time frame						
Prime time	5.60	<b>&lt;0.001</b>	0.38	<b>&lt;0.001</b>	3.31	<b>&lt;0.001</b>
Off prime time	8.14		0.59		3.69	
Total	6.87	-	0.49	-	3.50	-

\*The unit of measure used in delivery rate is the number of ads per hour and channel (n/h/c)

of food advertisements was higher. Similar to our findings, another study in China in 2012 was found that food advertisements were more widely showed during the time-periods when children were mostly watching the screen (6).

The majority of food advertisements are unhealthy foods; food ads such as fruits and vegetables that are beneficial for health were much less showed. Similar to the findings of our study, Gallus et al. (16) reported that fruit and vegetables were never advertised during children's programs, and that the majority of food advertisements consisted of snacks such as foods containing saturated fats, salt, and sugar. The use of media to explain the importance of healthy nutrition to child age groups in which food habits are gained to a great extent and behaviors that will determine the future health are developed can have beneficial effects. According to our research, if a child watches TV for only 2 hours a day, he/she is exposed to 76 food advertisements and 59 unhealthy food advertisements per week. In a study conducted by Kelly et al. (15) unlike our study, it was found that a child was exposed to 70 food advertisements and 56 unhealthy food advertisements within 2 hours. In the study which evaluated the TV channels broadcasting in China, these values were determined as 102 and 46, respectively (6).

After the date of this study, a regulation on broadcasting services was changed and the regulation regarding the publication of food advertisements was made. According to this regulation, it is decided that commercial communication of food and beverages containing food and substances which are not recommended to be over-consumed in general nutrition diets cannot be included with or within children's programs. In this context, food ads are categorized as red, orange, and green. Food advertisements on the red list are not allowed to be published in children's programs, and those on the orange list can be published if the criteria are met. During the publication of the program types other than children's programs (at the beginning, between, and at the end of the program), it is also possible to advertise food products that cannot be advertised in children's programs, provided that certain warnings are placed (20). In Chile, the Food Labeling and Advertising Law began to be implemented in 2016 to reduce the consumption of unhealthy foods. Correa

et al. (21) examined the changes in food advertisements on television after the legislation and found that food advertisements containing high energy, saturated fat, sugar or sodium decreased from 41.9% before the regulation to 14.8% after the regulation. In Spain, a public health law aimed at protecting children against advertisements for unhealthy food was passed in 2011. Campos et al. (22) analyzed food advertising aimed at children on Spanish television in 2013 and 2018 to test the effect of law over time and they determined that the trends of nutritional profiles in food advertising on television are worsening over time and the prevalence of unhealthy food ads was higher in 2018 than in 2013. As a result, the necessity of improving laws and increasing compliance with them was emphasized.

The strengths of the research are the fact that the research sample covers all days of the week and PT and OPT periods, and the use of a standard advertising categorization form, which was created by the researchers by scanning the literature for data collection.

#### *Study Limitations*

The limitations of our study were that the sample did not include some hours when children were in front of the TV, especially in the morning hours, that the children's channels were not evaluated and that the effects of the convincing methods (music, animation, use of celebrities, promotion, etc.) used in advertising were not examined.

#### **Conclusion**

The prevalence of food advertising on national television channels is high. Obesity-promoting ads constitute the majority of food ads. The frequency of healthy food ads is low. The level of exposure to unhealthy food advertisements during a child's time in front of the TV is high. This study was conducted before the regulations on food advertisements and new studies are needed to examine the situation after the new regulation.

#### *Ethics*

*Ethics Committee Approval:* The study protocol was approved by Pamukkale University Ethics Committee (approval number: 60116787-020/81512, date: 05.12.2017).

*Conflict of Interest:* No conflict of interest was declared by the authors.

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## References

- World Health Organization (WHO). Obesity and overweight. (Accessed 6th October 2022). Available from: URL: <https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight>.
- T.C. Sağlık Bakanlığı. Türkiye Çocukluk Çağı (İlkokul 2. Sınıf Öğrencileri) Şişmanlık Araştırması COSI-TUR 2016. Ankara, 2017. (Accessed 4th October 2022). Available from: URL: <https://hsgm.saglik.gov.tr/depo/haberler/turkiye-cocukluk-cagisismanlik/COSI-TUR-2016-Kitap.pdf>
- Centers for Disease Control and Prevention (CDC). Childhood Overweight & Obesity. (Accessed 26th September 2022). Available from: URL: <https://www.cdc.gov/obesity/childhood/index.html>
- Zhou Z, Diao Q, Shao N, Liang Y, Lin L, Lei Y, et al. The frequency of unhealthy food advertising on Mainland Chinese Television (TV) and children and adolescents' risk of exposure to them. *PLoS One* 2015;10:e0128746.
- Karaçil MŞ, Şanlıer N. Obesogenic Environment and Effects on the Health. *Gümüşhane University Journal of Health Sciences* 2014;3:786-803.
- Li D, Wang T, Cheng Y, Zhang M, Yang X, Zhu Z, et al. The extent and nature of television food advertising to children in Xi'an, China. *BMC Public Health* 2016;16:770.
- Ng SH, Kelly B, Se CH, Chinna K, Sameeha MJ, Krishnasamy S, et al. Obesogenic television food advertising to children in Malaysia: sociocultural variations. *Glob Health Action* 2014;7:25169.
- Adreyeva T, Kelly IR, Harris JL. Exposure to food advertising on television: associations with children's fast food and soft drink consumption and obesity. *Econ Hum Biol* 2011;9:221-33.
- Neville L, Thomas M, Bauman A. Food advertising on Australian television: the extent of children's exposure. *Health Promot Int* 2005;20:105-12.
- Powell LM, Wada R, Kumanyika SK. Racial/ethnic and income disparities in child and adolescent exposure to food and beverage television ads across the U.S. media markets. *Health Place* 2014;29:124-31.
- World Health Organization (WHO). A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children. (Accessed 28th September 2022). Available from: URL: <https://apps.who.int/iris/handle/10665/80148>
- Ok MA, Ercan A, Kaya FS. A content analysis of food advertising on Turkish television. *Health Promot Int* 2016;31:801-8.
- Guran T, Turan S, Akcay T, Degirmenci F, Avci O, Asan A, et al. Content analysis of food advertising in Turkish television. *J Paediatr Child Health* 2010;46:427-30.
- Movahhed T, Seifi S, Rashed Mohassel A, Dorri M, Khorakian F, Mohammadzadeh Z. Content analysis of Islamic Republic of Iran television food advertising related to oral health: appeals and performance methods. *J Res Health Sci* 2014;14:205-9.
- Kelly B, Halford JC, Boyland EJ, Chapman K, Bautista-Castano I, Berg C, et al. Television food advertising to children: a global perspective. *Am J Public Health* 2010;100:1730-6.
- Gallus S, Borroni E, Stival C, Kaur S, Davoli S, Lugo A, et al. Food advertising during children's television programmes in Italy. *Public Health Nutr* 2021;24:4663-70.
- Cheung VHI, Louie JCY. Non-core food product advertising on free-to-air television in Hong Kong. *Public Health Nutr* 2020;23:2457-66.
- Kontsevaya AV, Imaeva AE, Balanova YA, Kapustina AV, Breda J, Jewell JM, et al. The extent and nature of television food advertising to children and adolescents in the Russian Federation. *Public Health Nutr* 2020;23:1868-76.
- Rovirosa A, Zapata ME, Gomez P, Gotthelf S, Ferrante D. Food and beverage advertising on children's TV channels in Argentina: Frequency, duration, and nutritional quality. *Arch Argent Pediatr* 2017;115:28-34.
- Yayın Hizmeti Usul ve Esasları Hakkında Yönetmelikte Değişiklik Yapılmasına Dair Yönetmelik. (Accessed 5th October 2022). Available from: URL: <http://www.resmigazete.gov.tr/eskiler/2018/03/20180327-1.htm>
- Correa T, Reyes M, Taillie LS, Corvalán C, Dillman Carpentier FR. Food Advertising on Television Before and After a National Unhealthy Food Marketing Regulation in Chile, 2016-2017. *Am J Public Health* 2020;110:1054-9.
- Campos D, Escudero-Marín M, Snitman CM, Torres-Espínola FJ, Azaryah H, Catena A, et al. The Nutritional Profile of Food Advertising for School-Aged Children via Television: A Longitudinal Approach. *Children* 2020;7:230.